REMARKS

Claims 1-5 are currently pending in the subject application, and are presently under consideration. Claims 1 and 2 are rejected. Claims 3-5 have been indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 1 and 4 have been amended. Claims 2 and 3 have been cancelled. Favorable reconsideration of the application is requested in view of the amendments and comments herein.

I. Objection to the Drawings

The drawings have been objected to under 37 CFR 1.83(a) based on not showing every feature of the invention specified in the claims. Representative for Applicant respectfully disagrees. Upon reviewing the Specification and accompanying Drawings, it can be ascertained that all of the features described in the claims are adequately supported by the drawings.

Regarding claim 1, the Examiner asserts that encoding of binary data and detection of UWB pulses using a zero-amplitude sensing threshold are not shown in the drawings. FIGS. 2A through 2C, as well as FIGS. 3A and 3B, demonstrate these claimed features. For example, the Specification describes the following:

> Figs. 2A, 2B and 2C illustrate detection of UWB carrier pulses in accordance with an important aspect of the present invention. Fig. 2A shows a sequence of two UWB pulses, in which the second pulse is phase inverted with respect to the first. If the two pulses are rectified as shown in Fig. 2B and then low-pass filtered to produce the waveforms of Fig. 2C, a carrier pulse of the first type produces a positive-going pulse of amplitude A and a carrier pulse of the second type produces a negative-going pulse (amplitude -A). (Present Application, paragraph 16).

In addition, in describing FIG. 2, the Specification states that "if carrier pulses of the positive type are used to encode digital ones and carrier pulses of the negative type are used to encode digital zeros, a threshold at zero amplitude can be used to detect the pulses," (Present Application, paragraph 17). Therefore, FIG. 2A demonstrates a binary 0 waveform and a binary

1 waveform, from left to right, FIG. 2B demonstrates a filtered and rectified version of the waveforms, and FIG. 2C demonstrates binary values corresponding to the rectified waveforms from a zero-amplitude sensing threshold. Therefore, based on these two passages from the Specification, FIGS. 2A through 2C adequately support encoding of binary data, and FIG. 2C adequately supports detection of UWB pulses using a zero-amplitude sensing threshold, as recited in claim 1.

Regarding claim 3, the Examiner asserts that features of sensing whether carrier phase is inverted or not and adjustment of the polarity of unidirectional signals are not shown. FIGS. 2A through 2C also show these features. As described in the passage above, the two waveforms in FIG. 2A have an inverted phase, each corresponding to a different binary value. Also as described above, FIG. 2B demonstrates that the polarity of the unidirectional signals are adjusted, such that the binary values can be detected relative to the zero-threshold. Therefore, FIGS. 2A through 2B adequately demonstrate sensing whether carrier phase is inverted or not and adjustment of the polarity of unidirectional signals are not shown, as recited in claim 3.

Regarding claims 4 and 5, the Examiner asserts that the subject matter of the claims are not shown in the drawings. Claim 4 recites that the UWB pulses are generated in predetermined time slots, and that portions of each time slot are assigned to respective communication channels, whereby data signals pertaining to multiple communication channels are transmitted in a single time slot. FIGS. 3A and 3B support the language of claim 4. Specifically, the Specification states:

> Another benefit of the encoding technique is that positive and negative carrier pulses may be conveniently applied to represent data for two different users. In particular, information for two users may be encoded into a single time slot of a carrier pulse, as illustrated in Fig. 3, in which the first half of each carrier pulse is used to code data for User #1 and the second half of each carrier pulse is used to code data for User #2. Fig. 3A shows a normally phased carrier in the first half of a first carrier pulse and a phase-inverted carrier in the second half of the first carrier pulse. The second carrier pulse is shown has having a phase-inverted first half and a normal second half. Fig. 3B shows the resulting signals after rectification and filtering. If a normally phased carrier is chosen to represent a "1" and a phase-inverted carrier represents a "0," the illustration of Figs. 3A and

> 3B shows the encoding of the data sequence "10" for the first halves of the carrier pulses, and a data sequence "01" for the second halves of the carrier pulses. The half sections of the carrier pulses may be used to represent data for separate users, for example. (Present Application, paragraph 18).

The above passage clearly demonstrates that FIGS. 3A and 3B adequately support the language of claim 4. Specifically, FIGS. 3A and 3B describe generating the UWB pulses in predetermined time slots, and that the halves of the pulses can be assigned to separate users, such that the halves of the pulses can carry data for separate users (*i.e.*, separate communication channels). Further support for the division of UWB pulses into time slots for separate channels is also provided based on the following:

> In this manner, data signals pertaining to multiple communication channels are transmitted in a single time slot. More specifically, in the disclosed example of this embodiment each UWB pulse time slot has two half time slots, and data signals pertaining to first and second communication channels are encoded in the first and second halves, respectively, of each UWB pulse time slot. (Present Application, paragraph 8).

Therefore, based on these passages in the Specification in describing FIGS. 3A and 3B, the language of claim 4 is adequately supported by the drawings.

Claim 5 recites that each UWB pulse time slot has two half time slots, and that data signals pertaining to first and second communication channels are encoded in the first and second halves, respectively, of each UWB pulse time slot. Based on the above passages from the Specification, claim 5 is clearly supported by FIGS. 3A and 3B.

For all of these reasons, Representative for Applicant respectfully submits that the claims are fully supported by the Drawings of the Present Application. Withdrawal of the objection to the Drawings is respectfully requested.

II. Rejection of Claim 1 Under 35 U.S.C. §103(a)

Claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S .Patent No. 7,010,056 to McCorkle ("McCorkle") in view of U.S. Publication No. 2004/0179631 to

Nielsen ("Nielsen"). Claim 1 has been amended to substantially recite the elements of claims 2 and 3, now cancelled. Claim 3 has been indicated as allowable if rewritten in independent form. Therefore, amended claim 1 should now be in a condition for allowance. Withdrawal of the rejection of claim 1 is respectfully requested.

III. Rejection of Claim 2 Under 35 U.S.C. §103(a)

Claim 2 stands rejected under 35 U.S.C. §103(a) as being unpatentable over McCorkle in view of Nielsen as applied to claim 1, and further in view of U.S. Patent No. 6,512,474 to Pergande ("Pergande"). Claim 2 has been cancelled, rendering this rejection moot.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully submits that the present application is in condition for allowance. Applicant respectfully requests reconsideration of this application and that the application be passed to issue.

Please charge any deficiency or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0090.

Respectfully submitted,

Date 10/2/07

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